

FISAROVA, M, dr.; SCHWARTZOVA, K.; SOLC, J.

EEG findings following acute poisoning in children. Cesk. pediat.
20 no.9:829-830 S '65.

1. Neurologicka a detska klinika Lekarske fakulty Karlovy University
v Plzni. Submitted February 2, 1965.

CZECHOSLOVAKIA

UDC 616-001.271-057-07(437.1-15)

HUZL, Frantisek; KLIMKOVA-DEUTSCHOVA, Eliska; JANKOVA, Jarmila; MAINEROVA, Jirina; SALCMANOVA, Zdenka; SCHWARTZOVA, Kveta; SUCHANOVA, Larisa; SYKORA, Jindrich; Department of Occupational Diseases and Toxicology, Faculty Hospital (Oddeleni Chorob z Povolani a Toxikologie Fakultni Nemocnice), Plzen, Head (Vedouci) Dr F. HUZL; Neurological Clinic Medical Faculty, Charles University (Neurologicka Klinika Lek. Fak. KU), Plzen, Head (Prednostka) Docent Dr E. KLIMKOVA-DEUTSCHOVA.

"Examination of Workmen Exposed to Electromagnetic Waves of One Meter and Longer Length in the Region of West Bohemia."

Prague, Pracovni Lekarstvi, Vol 18, No 3, Apr 66, pp 100 - 106

Abstract [Authors' English summary modified]: 68 workmen employed in areas of electromagnetic fields with frequencies of 2.4 to 2.4 cycles, and wave length 3.5 to 30 meters were investigated. 52 were subjected to an uninterrupted field, and 16 to a polyfrequency interrupted field. 23% in the first, and 50% in the second group were influenced by the field. Only in one a serious disease resulted; most suffered simply from headache, fatigue, vegetative symptoms and loss of coordination of the cortex and mesodiencephalic CNS functions. 6 Figures, 2 Tables, 4 Western, 14 Czech references. (Ms. rec. 29 Jan 65).

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CZECHOSLOVAKIA

SCHWARTZOVA, K.; Neurological Clinic, Medical Faculty, Charles University (Neurologická Klinika Lak. Fak. KU), Plzen, Chief (Prednostka) Docent Dr E. KLIMKOVA-DEUTSCHOVA.

"EEG in Chronic Trichloroethylene Poisoning."

Prague, Ceskoslovenska Neurologie, Vol 29, No 6, Nov 66, pp 369 - 377

Abstract [Author's English summary modified 7: 107 recordings were made with 78 workers of an average age 40.7 years, and an average exposure of 7.5 years. The recordings were normal in 14.1%, on the borderline in 46.1%, slightly abnormal in 5.1%, and moderately abnormal in 34.5%. In healthy people normal recordings are made in 64%, and borderline in 9%. When exposure to trichloroethylene was discontinued recordings returned to normal; continued exposure made the recordings worse. Organic changes were mostly reversible, and probably due to transitory hypoxia. EEG examinations should be given to workers before they start working in a dangerous area, and they should be repeated periodically. 4 Figures, 7 Western, 6 Czech, 1 Polish reference.

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(Manuscript received 1 Jun 66).

9/20
9/21
The oxidation zone of the copper ore deposits near Naurai, Sonia Schwartzova and Josef Schwarz (Tech. Hochschule, Kutner, Czech.) Geol. Práce (Bratislava) (Rept. Ser.) 8, 88-94 (1956) (German summary).—The primary ore contains pyrrhotite, pyrite, chalcopyrite, arsenopyrite, and tetrahedrite. The oxidation zone has much

chalcantite, with malachite, melanterite, and limonite, and rare native Cu. The last is believed to have been formed from chalcantite.

Michael Fleischer

STERN, A.

Supply of materials in the building industry. p. 438. POUZENI STAVEBY.
(Ministerstvo stavebnictvi) Praha. Vol. 3, no. 11, Nov. 1955.

SOHIO: East European Accessions List, Vol. 5, no. , September 1956

SCHWARZ, A.; KREIFLOW, I.

Specifications for supplying construction and building erection projects of
the Ministry of Building. p. 19.

Vol. 4, no. 1, Jan. 1956
POZEMNI STAVBY
Praha, Czechoslovakia

Source: East European Accession List. Library of Congress
Vol. 5, No. 8, August 1956

KRISZAT, E., inz.; SCHWARZ, A., inz.; KERSTEN, R., inz. (German Democratic Republic)

New equipment in shipbuilding in the German Democratic Republic.
Bud okretowe Warszawa 8 no.10:340-344 0 '63.

1. Kammer Deutsche Technik (for Krizat and Schwarz).

SCHWARZ, F.

Investigation of plasticity from the point of view of crystal chemistry. Epitoanyag 14 no.2:51-54 F '62.

SCHWARZ, Herman

Organizational and technical improvement is the proper way to the reduction of costs of servicing. Przegl drob wytworz 12 no. 5: 19-20 March '62.

SCHWARZ, Herman (Wroclaw)

A simple correction may save 140 million zloty. Przegl
drobnej wytworczości 12 no.6:20 Mr '62.

L 17099-65 EWT(m)/EWP(j) Pc-4 ASD(m)-3/AFETR RM

ACCESSION NR: AP4046509

G/0004/64/000/009/0535/0540

AUTHOR: Schwarz, H.; Brinke, G.

TITLE: Various methods for welding plastics and their applications

SOURCE: Plaste und Kautschuk, no. 9, 1964, 535-340

TOPIC TAGS: thermoplastic resin fabrication, polyvinyl chloride fabrication, polyolefin fabrication, high frequency welding, friction welding

ABSTRACT: The various welding methods employed for the joining of thermoplastic materials in sheet or tube form are discussed from a technical and economical point of view on the basis of current references in the literature. Hot-gas welding has been employed for poly(vinyl chloride) items since 1938 (using air at 250C and 1.5 atm. pressure); this technique has recently been mechanized. Poly(vinyl chloride) items of greater thickness can be successfully joined by welding with the aid of high-frequency radiation (<27 megacycles/sec.; > 1000 kp. pressure). Polyethylene, polypropylene, and other polyolefins cannot be joined by cementing; for these plastics, welding is even more important. Good joints can be obtained by local heating of the adjoining surfaces with the aid of properly-shaped heating elements. The proper welding temperature for

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ACCESSION NR: AP4046509

polyolefins is above the melting point of the crystallites but below that of the amorphous portions. Various manually, semiautomatically, and automatically operated devices are available for the execution of this operation. A relatively new technique, used at present mainly for poly(vinyl chloride), is the friction-welding process. It has been employed for the manufacture of valve components and for the sealing of the lids of containers. The two surfaces to be joined are rotated in relation to each other while held together under pressure. One of the pieces may be stationary or may be rotated in the opposite direction from the other. This operation can be conveniently performed on a lathe. Significant manufacturing economies can be realized by mechanizing and automating the welding operations. Orig. art. has: 22 figures.

ASSOCIATION: Zentralinstitut für Schweißtechnik der DDR, Halle (Central Institute for Welding Technology of the German Democratic Republic)

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, MM

NO REF SOV: 000

OTHER: 020

Card 2/2

L 11018-66

ACC NR: AP6004964

SOURCE CODE: CZ/0083/65/000/002/0087/0090

AUTHOR: Schwarz, H.

ORG: University Clinic of Neurology, Greifswald

TITLE: Psychiatry in the puberty period

SOURCE: Ceskoslovenska psychiatrie, no. 2, 1965, 87-90

TOPIC TAGS: psychiatry, behavior pattern, psychopathology, experiment animal

ABSTRACT: Psychiatry doesn't really change with the age of the patient; problems of a definite age group affect, however, the formation of the mind. Problems met between the ages of 12 and 18 are discussed. Psychiatry of puberty deals with problems of the psychosomatic processes of growing up. Suicidal attempts of young people are discussed. 3 cases from author's practice are reviewed. Special attitudes to various problems adopted by young people are described. In most cases improvement takes place even without professional help. This work was presented by J. Macir. [JPRS]

SUB CODE: 06, 05 / SUBM DATE: none

HW
Card 1/1

SCHWABZ, I.

Days for exchanging experiences obtained in building during the winter season. p. 349.

STAVPA. (Poverenictvo stavebnictva) Bratislava, Czechoslovakia, Vol. 6, no. 11, Nov. 1959.

Monthly List of East European Accessions (EEAL), LC, Vol. 9, no.1, Jan, 1960

Uncl.

SCHWARZ, Ivan, inz.

Annual Conference of the Section for Building of the
Regional Committee of the Czechoslovak Scientific
Technical Society. Inz stavby 11 no.4:159 Ap '63.

schwarz, j.

"Practical use of industrial television under water in hydroelectric-power production."

ENERGETIKA, Praha, Czechoslovakia, Vol. 9, no. 3, March 1959

Monthly List of East European Accessions Index (EEAI), Library of Congress,
Vol. 8, No. 8, August 1959

Unclassified

SCHWARZ, J.

Integrator of bio-electric currents. Cesk. fysiол. 4 no.2:
208-212 May 55.

1. Ustav lekarske fysiky lekarske fakulty Palackeho university,
Olomouc.

(ELECTROPHYSIOLOGY,
integrator of bio-electric currents)

SCHÖBER, B.; SCHWARZ, J.

Automatic electrolytic metabolism counter and semi-automatic apparatus for determination oxygen requirement in small laboratory animals. Cesk. fysiол. 4 no.3:368-370 1955.

1. Ustav lékařské fyziky lékařské fakulty Palackého university v Olomouci.

(METABOLISM,

oxygen consumption, determ., electrolytic & semi-automatic appar. for small animals.)

50111002, 5
Czechoslovakia/Fitting Out of Laboratories - Instruments, Their Theory, Construction, and Use, H

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62009

Author: Schwarz, J., Sedlacek, J.

Institution: None

Title: Design of a Modified Kofler Block

Original

Periodical: Zkusenosti s konstrukci modifikavaneho Koflerova bloku, Chem. listy, 1955, 49, No 9, 1395-1397; Czech

Abstract: Description of a simple design of Kofler block for determination of melting points and other purposes. The block is made of duraluminum, provided with electric heater of maximum capacity of 150 watts and permits to measure temperature with thermocouple as well as with mercury thermometer. In former case more accurate results are obtained. The block is mounted on standard microscope stage.

Card 1/1

JURCA, F.; DOLEZAL, B., prof., inz., dr.; KRATOCHVIL, F., inz.;
POLANSKI, B., prof., inz., dr.; POLENO, Z., inz.; TRUNEC, F., inz.;
ZAKOPAL, V., inz.; SCHWARZ, J., inz.

Discussion on the gradual shelterwood cutting system. Les cas
9 no.4/5:497-500 '63.

1. Lesnicka fakulta, Vysoka skola zemedelska, Brno (for Dolezal and Polansky).
2. Lesni zavod Petrohrad; poslanec Narodniho Shromazdeni (for Jurca).
3. Lesni zavod Kacov (for Kratochvil)
4. Lesnicko-technicka skola, Trutnov (for Poleno).
5. Podnikove reditelstvi Statnich lesu Teplice (for Trunec and Schwarz).
6. Vyzkumny ustav lesniho hospodarstvi a myslivosti (for Zakopal)

SCHWARZ, J., inz.; SPIRMAN, O., dr.

Mobile hoister with electric drive. Siln doprava 11 no.11:
26 N '63.

CZECHOSLOVAKIA / Microbiology. Microbes Pathogenic for F-4
Man and Animals. Pathogenic Fungi and Actinomyces.

Abs Jour: Ref Zhur-Biol., 1958, No 17, 76851.

Author : Hejtmanek, Milan; Schwarz, Jan.

Inst : Not given.

Title : Electron Microscopy of Pathogens for Human Fungi.

Orig Pub: Scripta med., 1956, 29, No 1-2, 13-19.

Abstract: Electron microscopy of Trichophyton interdigitale, T. gypseum, T. rosaceum gives the possibility of studying in detail the structure of each specie (structure of cellular membranes, methods of attachment of the spores to hyphae of spores in the chains and others), which are badly differentiated under the optical microscope. Fixing of the material with parts of formalin is recommended.

Card 1/1

BILIKIEWICZ, Tadeusz, SCHWARZ, Jan

Some important methods of clinical psychology. Postepy neur. neurochir.
4:85-126 1958

1. Kliniki psychiatryczna A.M. w Gdańsku.
(PSYCHOLOGICAL TESTS,
review (Pol))

1000000, Jan, 19

Research work of the Danzig Branch of the Polish Psychological
Society. Przegł psychol no. 7:102-112 '61.

1. Chairman of the Danzig Branch of the Polish Academy of Sciences.

SCHWARZ, Josef, inz.

The Mostiste waterwork. Energetika Cz 12 no.4:191-192 Ap '62.

1. Jihomoravske energeticke zavody, Brno.

SCHWARZ, Josef, inz.

Maintenance of the cog wheels of water turbines. Energetika Cz 11
no.6:286-287, 289 Jg '61.

SCHWARZ, K.

Instrument for measuring the stability of servomechanisms. p. 222.
(AUTOTECHECKY OBZOR, vol. 14, no. 5, May 1955, Praha)

30: Monthly List of East European Accession, (EML), 10, Vol. 4, No. 11,
Nov. 1955, Univ.

SCHWARZ, K.

621.791.735
✓ 1063. WELDING SET "ARGON-ARC TO 35" FOR WELDING
ALUMINIUM CONDUCTORS. K. Schwarz.
Elektrotech. Obozor, Vol. 45, No. 5, 337-40 (1956). In Czech.
The design of a welding set for thin aluminum conductors
is described. Electrical Research Association P.S.

SCHWARZ, Klaus, dr., prof., agr.habil.

Studies for rationalizing the operation of sprinkler irrigation.
Vizugyi kozl no.4:541-552 '62.

1. Jenai Friedrich Schiller Egyetem Talajjavitasi es Zoldmezo
Intezet igazgatoja, Nemet Demokratikus Koztarsasag.

SCHWARZ, K.K.; ALUKER, E.D.; MEZINA, I.P.

On the temperature quenching of radioluminescence of some thallium activated alkali halides. Acta physica Pol 26 no.3/4:795-799 S-O '64.

1. Institute of Physics of the Academy of Sciences of the Latvian S.S.R.

SCHWARZ, L.

"From the national Technology Days Conference in Prague concerning standardized fixtures for bathrooms and kitchens in prefabricated buildings." p. 187.

STAVRA. (Poverenictvo stavebnictva). Bratislava, Czechoslovakia, Vol. 6, No. 6, June 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 8, August 1959.
Uncla.

2465. Schwarz P. Az aranykolloid erzekenysegenek beallitasara szolgáló eljárások Methods
for adjusting the sensitivity of colloidal gold Orvosi Hetilap 1948, 89/23 (362-365)
Tables 5

So: Physiology, Biochemistry & Pharmacology, Section II, Vol. 2, No. 1,5

SCHWARZ, P.. (Svarc) STANULOVIC, D.

Adjusting of the colloidal gold solution for the serum gold test.
Acta med. iugosl. 10 no.1:59-62 1956.

1. Medical Research Laboratory of Vojvodina and Clinical Laboratory
of the District Main Hospital, Novi Sad.

(GOLD, in blood,

colloidal gold solution test in liver dis. (Ser))

(LIVER FUNCTION TESTS,

colloidal gold solution for serum gold test (Ser))

STANULOVIC, D.; SCHWARZ, P., (Svarc)

Diagnostic value of colloid gold reaction in blood serum examination and its clinical use. Acta med. iugosl. 10 no.3: 399-406 1956.

1. Klinicka laboratorija Glavne pokrajinske bolnice i Pokrajinska medicinskoistraziivacka laboratorija u Novom Sadu.

(LIVER FUNCTION TESTS,
colloidal gold test (Ser))

SCHMARZ, R.

"Are caterpillars of the fall webworm (Hyphantria cunea, Insecta Lepidoptera) able to digest cellulose?" (p.143). BIOLOGICKY SBORNIK. (Slovenska akademie vied a umeni) Bratislava. Vol. 7, No. 1/2, 1952.

SO: East European Accessions List, Vol 3, No 8, Aug 1954.

SCHWARZ, R.: LOYDA, L.

"Komorni Hurka Hill and the interference of human activity"

Ochrana Prirody. Praha, Czechoslovakia. Vol. 10, no. 6, July 1955

Monthly list of East European Accessions (EEAI), Vol. 8, No. 6, Jun 59, LC, Unclass

SCHWARZ, R.; LOUDA, L.

GEOGRAPHY & GEOLOGY

Periodicals: CASOPIS PRO MINERALOGII A GEOLOGII. Vol. 3, no. 2, 1958

SCHWARZ, R.; LOUDA, L. Komorní hora. p. 190.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 5,
May 1959, Unclass.

SCHWARZ, STEFAN

(Schwarz, Stefan. A hypercomplex proof of the Jordan-Kronecker's "principle of reduction." Časopis Pěst. Mat. Fys. 71, 17-20 (1945). (English. Czech summary)

Let $f(x)$ and $g(x)$ be two irreducible separable polynomials over a field P and let each be factored in the field obtained by adjoining to P a zero of the other: $f(x) = f_1(x, \beta) \cdots f_r(x, \beta)$, $g(x) = g_1(x, \alpha) \cdots g_s(x, \alpha)$, where α is a root of $f(x) = 0$ and β a root of $g(x) = 0$. By expressing the ring $P(\alpha)[x]/(g(x))$ as a direct sum of fields, the author gives a short proof of Kronecker's theorem that $r = s$ and, under proper numbering,

$$(\text{degree } f_i)/(\text{degree } g_i) = (\text{degree } f)/(\text{degree } g)$$

for each i . He also proves a theorem of Loewy [Math. Z. 15, 261-273 (1922)] which gives further relations between these factors. G. Whaples (Bloomington, Ind.)

Source: Mathematical Reviews,

Vol 8 No. 9

Jan

SCHWARZ, STEFAN

Schwarz, Stefan. Contribution à la réductibilité des congruences binomiales. Casopis Pěst. Mat. Fys. 71, 21-31 (1946). (Czech. French summary)

The author proves the following theorem. Let p be a prime, $(n, p) = (a, p) = 1$, $d_k = (p^k - 1, n)$, and σ_k the number of irreducible factors of degree k of the binomial congruence $x^n - a \equiv 0 \pmod{p}$; then, for $1 \leq k \leq n$, $\sum_{1 \leq k \leq n} \sigma_k \equiv 0 \text{ or } d_k \pmod{p}$ according to whether $a^{(p^k - 1)/d_k} \not\equiv 1$ or $\equiv 1 \pmod{p}$. For $n < p$ the σ_k can be determined from these relations. The following applications are given: (1) $x^n - a$ is irreducible mod p if and only if $a^{(p^k - 1)/d_k} \not\equiv 1$ for $k < n$, $\equiv 1$ for $k = n$; (2) $x^4 + 1$ is reducible mod p for every prime; if $p = 8m + 3, 5, 7$ there are two quadratic factors, if $p = 8m + 1$ there are four linear factors; (3) let q be a prime, $q < p$, and let p belong to the exponent $l \pmod{q}$; then the congruence $x^n - a \equiv 0 \pmod{p}$ is irreducible if $l = 1$ and $a^{(p-1)/q} \not\equiv 1 \pmod{p}$, has q linear factors if $l = 1$ and $a^{(p-1)/q} \equiv 1 \pmod{p}$, and has one linear and $(q-1)/l$ factors of degree l if $l > 1$. F. A. Behrend.

Source: Mathematical Reviews, 1948, Vol 9, No. 1

SCHWARZ, STEFAN

Schwarz, Stefan, On the extension of the Jordan-Kronecker principle of reduction" for inseparable polynomials. Časopis Pěst. Mat. Fys. 72, 61-64 (1947). (English. Czech summary)

The author extends results of a previous paper [same Časopis 71, 17-20 (1946); these Rev. 8, 500] to the inseparable case. Let f and g be two irreducible polynomials over a field P and let each be factored into a product of powers of irreducible factors in the field obtained by adjoining to P a zero of the other. Then there is a unique one-to-one correspondence $f_i \sim g_i$ between the irreducible factors of f and of g , such that, for each i , f_i and g_i not only satisfy all the relations given in the paper cited above, but also have the same exponent in the factorization of f and of g , respectively.

These facts are easy consequences of the theory of commutative algebras. F. K. Schmidt has also given proofs of them [S.-B. Heidelberger Akad. Wiss. Math.-Nat. Kl. 1925, no. 5, 19-26]. G. Whaples (Bloomington, Ind.).

Source: Mathematical Reviews,

Vol 9

No. 6

SMU

SCHWARZ, STEFAN

2000

Schwarz, Stefan. On universal forms in finite fields.
Casopis Pest. Mat. Fys. 75, 45-50 (1950). (English,
Czech summary)

The following theorem is proved. Let (1) $a_1, \dots, a_k \in GF(p^n)$,
 $a_1 \dots a_k \neq 0$; (2) $(p^n - 1, k) \leq p - 1$. Then the equation
 $b = a_1 x_1^k + \dots + a_k x_k^k$ has a solution with $x_i \in GF(p^n)$ for every
 $b \in GF(p^n)$. The author had previously proved a like result
 with (2) replaced by $k \mid (p - 1)$ [Quart. J. Math., Oxford Ser.
 (1) 19, 160-163 (1948); these Rev. 10, 101]. L. Carlitz.

Source: Mathematical Reviews,

Vol. 11 No. 10

mmw

SCHWARZ, S.

"On the structure of simple semi-groups without zero. In English" p. 41 (Casopis
Pro Pestovani Matematiky. Czechoslovak Mathematical Journal, Vol. 1, No. 1, Sept.
1951, Praha)

SO: Monthly List of East European Accessions, Vol 3 No 3, Library of Congress, Jun 54 Uncl

SCHWARZ, S.

SCHWARZ, S.

Present situation of the study of mathematics in Slovakia. p. 4. (Matematicko-Fyzikalny
Casopis. Bratislava, East Vol. 3, no. 1/2, 1959.)

See: Mat. Listy List of European Association (SEAL), 1960, Vol. 4, No. 6,
June 1960, Uncl.

SCHWARZ S.

SCHWARZ, S.

Maximal ideals and the structure of semigroups. p.17. (Matematicko-Fyzikalny Casopis.
Bratislava. Vol. 3, no. 1/2, 1953)
SO: Monthly List of European Association (REAL), 18, Vol. 1, No. 6,
June 1981, Incl.

SCHWARTZ, S.

Schwarz, Stefan. Contribution to the theory of torsion
semigroups. Czechoslovak. Mat. Z. 3(78), 7-21 (1953).
(Russian. English summary)

Let S be a torsion semigroup, i.e., one in which every element has finite order. Let e be an idempotent element of S . A subsemigroup P of S is called a maximal subsemigroup belonging to e if (1) $e \in P$, (2) P contains no idempotent element $\neq e$, and (3) no subsemigroup of S containing at most one idempotent element can properly contain P . Such a P always exists, but need not be unique. It is unique if S is commutative, or if S is totally non-commutative in the sense that distinct idempotent elements of S never commute. On the other hand, there is always a unique maximal subgroup of S containing e . A. H. Clifford.

SCHWARZ, STEFAN

Schwarz, Stefan. On maximal ideals in the theory of semi-groups. I. Časopis Mat. 2. 3 (78), 139-153 (1953). (Russian. English summary)

A proper left (right, two-sided) ideal of a semigroup S is called maximal if it is not contained in any other proper left (right, two-sided) ideal of S . This and the paper reviewed below (cited as II) are concerned with semigroups S containing a maximal left (right, two-sided) ideal $L^*(R^*, M^*)$ which is not only unique, but such that every other proper left (right, two-sided) ideal of S is contained in $L^*(R^*, M^*)$. The expression " $L^*(R^*, M^*)$ exists" is to be construed in this strong sense. Let L^* exist in the semigroup S . Assume that $a \in Sa$ for every $a \in S$. Then the complement $S - L^*$ of L^* in S is a subsemigroup of S . The same result is proved in II, replacing the condition " $a \in Sa$ for every $a \in S$ " by " $S - L^*$ contains more than one element". If L^* happens to be a right as well as left ideal, then $S - L^*$ is left-simple. This is the case if every element of S has finite order. Let S be a semigroup satisfying the ascending chain condition for left ideals. If S contains at least one proper two-sided ideal, and if L^* exists, then so does M^* . The same result is proved in II without assuming the chain condition.

A. H. Clifford (Baltimore, Md.).

SCHWARZ, STEFAN

Schwarz, Stefan. On maximal ideals in the theory of semi-
groups. II. Czechoslovak. Mat. Z. 3(78), 365-383
(1953). (Russian. English summary)

This paper continues the foregoing. It is shown that every minimal left ideal of a semigroup with zero is the disjoint class sum of its radical and a left-simple subsemigroup. Corollary: If S contains no proper left ideal $\neq (0)$, then $S - (0)$ is a left-simple semigroup. If S is a simple semigroup with zero, containing at least one minimal left ideal I , and at most one maximal left ideal L , then $I = S$ and $L = (0)$. These and similar results are applied to the Rees quotient semigroup S/M , where M is a maximal two-sided ideal of S . For example: let S be a semigroup containing at least one proper two-sided ideal; let L^* exist (then so does M^*); let $S - L^*$ contain more than one element; let S/M^* contain a minimal left ideal; then $L^* = M^*$ and $S - L^*$ is a left-simple semigroup without zero. The paper concludes by noting that L^* always exists in a semigroup having a right identity element and at least one proper left ideal, and, in the above results, $S - L^*$ is a sum of disjoint isomorphic groups.

A. H. Clifford (Baltimore, Md.).

Schwarz, Stefan

Schwarz, Stefan. The theory of characters of finite commutative semigroups. Czechoslovak Math. J. 4(79), 219-247 (1954). (Russian. English summary)

1 - F/W

By a character of a semigroup S is meant a complex-valued function χ on S such that $\chi(ab) = \chi(a)\chi(b)$ for all $a, b \in S$. The main results of the paper hold only when S is finite and commutative, which we henceforth assume. If we define the product of two characters of S in the natural way, the set of all characters of S becomes a semigroup S^* . S^* is a finite commutative semigroup with zero element χ_0 . The main objective of the paper is to give a complete description of the structure of S^* assuming that of S is known.

Let E be the semi-lattice of idempotent elements of S . Let the elements of E be labelled by an index set I . To each $e_i \in E$ ($i \in I$) corresponds a subsemigroup P_i of S consisting of all $a \in S$ such that $a^n = e_i$ for some n . These so-called maximal subsemigroups P_i are disjoint, and their union is S . The maximal subgroup G_i of S having e_i as identity element is the group-ideal, or Suschkewitsch kernel, of P_i . An ideal J of S is called prime if $S - J$ is a subsemigroup of S ; S itself and the empty set $\emptyset$ are also considered to be prime ideals of S . There is an order-isomorphism between $\mathcal{B}$ and the set $\mathcal{P}$ of all prime ideals $J \neq S$ of S whereby, if $e_i \in J$, e_i is

the least member of E not in J_i , and J_i is the union of all those P_j for which e_j is not $\geq e_i$. There is an order-anti-isomorphism between the (semi-)lattice E^* of all idempotent elements e of S^* and the set $\mathcal{P} = \mathcal{P} \cup \{S\}$ of all prime ideals of S whereby, if $e_i \in J_i$, e_i is the characteristic function of $S - J_i$, and the zero character x_0 corresponds to the prime ideal S .

If $x \in S^*$, the set of all $a \in S$ such that $x(a) = 0$ is a prime ideal J of S . If $x \neq x_0$, then $J \neq S$, and $J = J_i$ for some $i \in I$. If b is any element of S we have $x(b) = x(be_i)$ if $be_i \in G_i$ and $x(b) = 0$ otherwise. x is thus uniquely determined by the character of G_i it induces. Conversely, if ψ is any character of G_i , x defined by $x(b) = \psi(be_i)$ if $be_i \in G_i$ and $x(b) = 0$ otherwise is a character of S . Hence the set of all $x \in S^*$ vanishing just on J_i is a subgroup G_i^* of S^* isomorphic with the character group of G_i , and hence with G_i itself; e_i is the identity element of G_i ; and S^* is the union of the disjoint

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groups G_i^* ($i \in I$) and $\{x_0\}$. The "gross structure" of S^* is thereby determined: S^* is a known (semi-)lattice E^* ($\cong \mathbb{P}$) of known groups G_i^* ($\cong G_i$) and $\{x_0\}$. In order to obtain the "fine structure" of S^* , the author shows that $G_j^* e_i \cong G_i e_j$ for every pair of indices $i, j \in I$ such that $e_j < e_i$ (and hence $e_i < e_j$). [The reviewer feels that the fine structure of S is more convincingly established by the observation that the homomorphism $x_i \rightarrow x_j e_i$ of G_j^* into G_i^* is just the adjoint of the homomorphism $a_i \rightarrow a_j e_i$ of G_i into G_j .] It is noteworthy that S^* is determined by the "group part" $S_0 = \bigcup_{i \in I} G_i$ of S . A. H. Clifford (New Orleans, La.).

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Schwarz, Stefan

✓ Schwarz, Stefan. On a Galois connexion in the theory of characters of commutative semigroups. Czechoslovak Math. J. 4(79), 296-313 (1954). (Russian. English summary) 1 - T/W

Let S be a finite commutative semigroup, and S^* the semigroup of characters of S [see the two preceding reviews]. An ideal a of S is called closed if $x^n \in a$ ($x \in S$, n a positive integer) implies $x \in a$. All ideals of S^* are closed. If a is an ideal of S , the set a_* of all characters of S vanishing on a is an ideal of S^* . If a_* is an ideal of S^* , the set a of all elements $x \in S$ such that $x(a) = 0$ for every $x \in a_*$ is an ideal of S . It is shown that these two mappings define a one-to-one inclusion reversing correspondence between the set of all closed ideals of S and the set of all ideals of S^* . If a is any ideal of S , the semigroup $[a]^*$ of all characters of the semigroup a is isomorphic to the Rees factor semigroup S^*/a_* . The semigroup $[S/a]^*$ of all characters of S/a , with the unit character removed, is isomorphic with a_* .

A. H. Clifford.

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Schwarz, Stefan. On Hausdorff bicomact semigroups.
Czechoslovak Math. J. 5(80) (1955), 1-23. (Russian.
English summary)

Math This paper is concerned with the structure of compact (Hausdorff) semigroups, in the same spirit as, and with some duplication of results of, papers of Numakura [Math. J. Okayama Univ. 1 (1952), 99-108; MR 14, 18], Wallace [An. Acad. Brasil. Ci. 25 (1953), 335-336; MR 15, 854], and Koch [Proc. Amer. Math. Soc. 5 (1954), 828-833; MR 16, 447]. Let S be a compact semigroup, $a \in S$, $A_a = \{a^n, a^{n+1}, \dots\}$, and $T_a = \bigcap_{n=1}^{\infty} A_a$. Then T_a is a commutative group, and the only idempotent in A_a is the unit of T_a . For an idempotent f of S , let K_f be the set of all $a \in S$ such that $f \in \{a, a^2, a^3, \dots\}$. Then S is the union of the (pairwise disjoint) sets K_f . As the author has shown earlier, [Czechoslovak Math. J. 3(78) (1953), 7-21; MR 15, 850], K_f need not be a semigroup even if S is finite. Also, K_f need not be closed. If S is commutative, then all K_f 's are semigroups, and, in fact, K_f is the largest subsemigroup of S containing no idempotent other than f . If all idempotents f of S are primitive ($f x = x f = x$ for an idempotent x implies $x = f$), then all K_f are closed. Let $a \in S$ and e_a be the idempotent in A_a . Then S is the union of disjoint groups if and only if $e_a a = a$ for all $a \in S$.

The author also examines carefully the case in which some K_f fail to be closed. For this purpose, he writes $\mathfrak{P}_f = \bigcup \{K_g : g \text{ is idempotent, } f \in K_g\}$ and $\Omega_f = \bigcup \{K_g : g \text{ is$

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idempotent, $e \in K$. The sets $\mathcal{P}$, and $\mathcal{Q}$, turn out to have a number of useful properties. Sample result: Let S be connected and contain n idempotents, $1 < n < \aleph_0$. Then for all idempotents f , $K_f \neq \mathcal{P}$, or $K_f \neq \mathcal{Q}$. E. Hewitt.

Schwarz, Stefan. Characters of bicomact semigroups. Czechoslovak Math. J. 5(80) (1955), 24-28. (Russian. English summary)

Let S be a compact commutative (Hausdorff) semigroup. Theorem: There is a unique idempotent e in S such that $ef = e$ for all idempotents $f \in S$. Let π be the largest subgroup of S containing e [see the preceding review]. The set S^* of all continuous functions χ on S of absolute value 1 such that $\chi(xy) = \chi(x)\chi(y)$ (characters) is clearly a group under multiplication. Theorem: S^* is isomorphic to the character group of the compact Abelian group π . (In fact, every character of π admits a unique extension over S that satisfies the functional equation, and this extension is continuous on S .) E. Hewitt (Princeton, N.J.).

Schwarz, Stefan. Topological semigroups with one-sided units. Czechoslovak Math. J. 5(80) (1955), 153-163. (Russian. English summary)

Schwarz, Stefan

that contains all left (right, 2-sided) proper ideals of S . Theorem: If L^* exists, then M^* exists and $L^* = M^*$. If R^* also exists, then $L^* = R^*$. Theorem: Suppose that L^* exists. If $S \cap L^*$ contains at least 2 elements or S is connected, then $S \cap L^*$ is a closed subsemigroup of S containing no proper left ideal. Also $S \cap L^*$ is the union of disjoint isomorphic compact groups. This last result is a refinement of a theorem of Faucett, Koch, and Numakura [Duke Math. J. 22 (1955), 655-661, Corollary 1; MR 17, 282]. Theorem: If L^* exists and $S \cap L^*$ contains at least 2 elements, then S contains a right unit. Theorem: Let S be connected. Then L^* exists if and only if S has a right unit and S contains a proper left ideal. Theorem: Suppose that S is connected and that L^* exists. The maximal subgroup containing an arbitrary right unit for S [see the 2nd preceding review] is contained in the boundary of L^* . The author answers in the negative a query of Wallace by constructing a connected compact semigroup with a unique left unit and no right unit. [For another construction of this kind, almost identical to that given here, see the paper reviewed below. In connection with the paper under review see Koch and Wallace, Duke Math. J. 21 (1954), 681-685; MR 16, 112.]

E. Hewitt.

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SCHWARZ, S.

Note on the theory of bicomact semigroups. p. 86. MATEMATICKO-FYZIKALNY CASOPIS. Vol. 5, No. 2, 1955.

SOURCE: East European Accessions List, (EEAL) Library of Congress Vol. 5, No. 8, August 1956.

Schwarz, Stefan. Semigroups satisfying some weakened forms of the cancellation law. Mat.-Fyz. Casopis. Slovensk. Akad. Vied 6 (1956), 149-158. (Slovak. Russian and English summaries)

The author considers the following conditions for a semigroup S . (A) S is a sum of disjoint semigroups in each of which the cancellation laws hold. (B) For every x, y in S the equation $x^2 = xy = y^2$ implies $x = y$. Then (A) implies (B). Hewitt and Zuckerman have proved that (B) implies (A) for abelian semigroups [Trans. Amer. Math. Soc. 83 (1956), 70-97; MR 18, 465]. The author gives an alternative simpler proof of this result, and a proof of the last implication for torsion semigroups. The results are applied to abelian groups.

M. Novotný (Brno).

Schwarz, Stefan. The theory of characters of commutative Hausdorff bicomact semigroups. Czechoslovak Math. J. 6 (81) (1956), 330-364. (Russian summary)
 This paper extends previous studies by the author [same J. 4(79) (1954), 219-247, 291-295, 296-313; MR 16, 1085, 1086]. Let S be a compact commutative semigroup, and $a \in S$. The set $\{a, a^2, a^3, \dots\}$ contains exactly one idempotent e , and a is said to belong to e . The set of all $x \in S$ that belong to a given idempotent $e \in S$ forms a subsemigroup of S , denoted P_e . There is a largest subsemigroup of S containing e , denoted G_e . After some preliminaries, of independent interest, about ideals and prime ideals (i.e., whose complements are subsemigroups) in S , the author proves the following main theorem. Let χ be a continuous complex function on S such that $\chi(a)\chi(b) = \chi(ab)$. Let $p = \{x \in S, \chi(x) = 0\}$. $J = \{x \in S, |\chi(x)| < 1\}$, $Q = \{x \in S, |\chi(x)| = 1\}$. Then J is an open prime ideal in S , and $Q = S \cap J'$ is a closed subsemigroup of S . Q is the union of all of the subsemigroups P_e for which $\chi(e) = 1$ and J is the union of all P_e for which $\chi(e) = 0$. p is a closed prime ideal in S containing all maximal groups G_e such

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that $\epsilon \in J$. Many examples are given. Ideals in S of the form $\{x: x \in S, \chi(x)=0\}$ for χ as above are studied and more or less identified. [For other studies of functions χ , see Hewitt and Zuckerman, Acta Math. 93 (1955), 67-119; Trans. Amer. Math. Soc. 83 (1956), 70-97; MR 17, 1048; 18, 465.] *E. Hewitt* (Seattle, Wash.)

SCHWARZ, S.

SCHWARZ, S. Semigroups satisfying some weakened forms of the cancellation law. p. 149.

Vol. 7, No. 3, 1956.

MATEMATICKO-FYZIKALNI CASOPIS.

SCIENCE

Bratislava, Czechoslovakia

So: East European Accession, Vol. 6, No. 3, March 1957

SCHWARZ, STEFAN

Schwarz, Stefan. On a type of universal forms in discretely valued fields. Acta Sci. Math. Szeged 17 (1956), 5-29.

1-FW

In a previous paper [Quart. J. Math. Oxford Ser. 19 (1948), 123-128; MR 9, 572] the writer proved Theorem 1. Let $p = (p^s - 1, p) \leq p - 1$, and suppose that $a_1, \dots, a_s$ are elements of $\text{GF}(p^s)$, $a_1 a_s \neq 0$. Then the equation $a_1 x_1^p + \dots + a_s x_s^p = b$ is solvable in $\text{GF}(p^s)$ for every $b \in \text{GF}(p^s)$. The object of the present paper is to extend this theorem in various ways. It is pointed out, by means of a special example, that Th. 1 is not a consequence of Chevalley's theorem.

Let K denote a field complete with respect to a discrete non-archimedean valuation. Let I be the ring of integers of K , π a prime of K , $\mathfrak{p} = \pi I$ the prime ideal generated by π ; it is assumed that the residue class field $I/\mathfrak{p}$ is a finite field $\text{GF}(p^s)$. Two cases are considered: (A) K has characteristic 0; it is the derived field of an algebraic number field $R(\theta)$ complete under a valuation corresponding to a prime ideal $\mathfrak{p}$ of $I(\theta)$, the ring of algebraic integers of $R(\theta)$. (B) K has characteristic p and is the field of formal power series in x , containing only a finite number of negative powers, with coefficients in $\text{GF}(p^s)$. In either case, every $a \in K$ is representable in the form

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$$a = \pi^{-1}(a_0 + a_1\pi + \dots) \quad (a_0 \neq 0, a_i \in \mathcal{O}).$$

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In case (A) we choose $\pi \in I(0)$ such that $p/\pi, p^2/\pi^2, \dots$ denotes a complete residue system (mod p). The principal results of the paper are the following.

Theorem 2. Let K be a complete field of type (A) or (B). Assume that (a) $k > 1$, $(k, p) = 1$, (b) $\delta = (k, p-1) \leq p-1$, (c) $a_1, \dots, a_{s+1} \in K$, $a_1 a_2 \dots a_{s+1} \neq 0 \pmod{p}$. Then the equation

$$a_1 x_1^k + \dots + a_{s+1} x_{s+1}^k = a$$

is solvable in K for every $a \in K$. Theorem 2a. Assume now that $a_1 a_2 \dots a_s \neq 0 \pmod{p}$. Then if the congruence

$$a_1 x_1^k + \dots + a_s x_s^k \equiv 0 \pmod{p}$$

has at least one non-zero solution, then every $b \in K$ can be written in the form

$$b = a_1 x_1^k + \dots + a_s x_s^k \quad (x_i \in K).$$

Put $k = kp^i, p \nmid k_0, i \geq 0$. If $i \geq 1$, then it is shown that in case (B) the equation

$$a = a_1 x_1^k + \dots + a_s x_s^k$$

need not be solvable in K for any $s \geq 1$. For case (A) we have Theorem 3. Let $\delta = (k, p-1) \leq p-1$.

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$$s = (p^{t(t+1)} - 1) / (p^t - 1),$$

and suppose that $a_1, \dots, a_s$ are s element of $J[\theta]$ such that $a_1 a_2 \dots a_s \not\equiv 0 \pmod{p}$. Then the congruence

$$b \equiv a_1 x_1^k + \dots + a_s x_s^k \pmod{p^{t+1}}$$

is solvable for every $b \in J[\theta]$. Theorem 4. With the same notation as in the previous theorem and $p/p, p^2/p$, the equation

$$b \equiv a_1 x_1^k + \dots + a_{s+1} x_{s+1}^k$$

is solvable in K for every $b \in K$. Theorem 4a. Suppose now that $a_1 a_2 \dots a_s \not\equiv 0 \pmod{p}$. Then if the congruence

$$0 \equiv a_1 x_1^k + \dots + a_s x_s^k \pmod{p^{t+1}}$$

has at least one non-zero solution, it follows that the equation

$$b \equiv a_1 x_1^k + \dots + a_s x_s^k$$

is solvable in K .

(Reviewer's remark. In connection with Th. 3 reference may be made to a recent paper by Eckford Cohen, Congruences in algebraic number fields, Transactions of the American Math. Society, 83 (1956), 547-556.)

L. Carlitz (Durham, N.C.).

1-FW

SCHWARZ, S.

More on quadratic polynomials which absorb many prime numbers. p. 241.

CASOPIS PRO PESTOVANI MATEMATIKY, Vol. 81, no. 2, May 1956.
Czechoslovakia.

SOURCE: East European Accessions List (EEAL), Library of Congress,
Vol. 5, No. 11, Nov. 1956.

Schwarz, Stefan. On the structure of the semigroup of measures on a finite semigroup. Czechoslovak Math. J. 7(82) (1957), 358-373.

Let S be a finite semigroup and $M(S)$ the set of all non-negative measures on S with total measure one. Under convolution $M(S)$ becomes itself a semigroup. This fact has appeared in various contexts [see, e.g., Hewitt and Zuckerman, Duke Math. J., 22 (1955), 595-615; MR 17:754]. The present paper examines some of the algebraic properties of $M(S)$ and especially the relation between the right invariant measures on S and the primitive idempotents of $M(S)$. (An idempotent μ is primitive if there is no other idempotent ν such that $\mu = \nu \nu = \nu$.) Any right invariant measure is a primitive idempotent, but not conversely. Under the assumption that S has at least one right invariant measure, the author proves several theorems including the following: The only minimal left ideal of $M(S)$ is its kernel, and this consists precisely of all the primitive idempotents. Further, let N be the kernel of S and put $R = N - (S - N)S$. Then a primitive idempotent is a right invariant measure if and only if its support is contained in R . It follows from this that the set of all primitive idempotents coincides with the set of all right invariant measures if and only if S is a left simple semigroup.

Many concrete and illustrative examples are included in the paper. G. Huford (Seattle, Wash.)

SCHWARZ, S., PARIZED, B.

Multiplicative semigroup of residue classes. p. 136

MATEMATICKO-FYZIKALNY CASOPIS. (Slovenska akademia vied)
Bratislava Czechoslovakia

Vol. 8, no. 3, 1958

Monthly list of East European Accessions (EEAI) LC. VOL. 9, no. 1 January 1960

Uncl.

SCHWARZ, S.

1-FW

Schwarz, Stefan. An elementary semigroup theorem and a congruence relation of Rédei. Acta Sci. Math. Szeged 19 (1958), 1-4.

Let S be a finite semigroup. For $a \in S$, let ρ and σ be the smallest positive integers such that $\rho < \sigma$ and $a^\rho = a^\sigma$. The elements $a^\rho, a^{\rho+1}, \dots, a^{\sigma-1}$ form a group, and the number $\sigma - \rho$ is called the period of a [see, for example, Hewitt and Zuckerman, Acta Math. 93 (1955), 67-119; MR 17, 1048]. For an idempotent $f \in S$, there is clearly a largest subgroup G_f of S that contains f . Theorem. Let S have a two-sided unit, e . If the period of every element of S divides $o(G_e) = l$, then $x^{o(S)} = x^{o(S)-1}$ for all $x \in S$. This semigroup theorem is used to prove Rédei's congruence $x^m \equiv x^{m-\varphi(m)} \pmod{m}$, valid for all integers x and all integers $m > 1$, where φ is Euler's φ -function.

E. Hewitt (Seattle, Wash.)

GORAKOVA, Korneliya [Horakova, Kornelia]; SHVARTS, Shtefan [Schwarz, Stefan]

Cyclic matrices and algebraic equations over a finite field.
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Authors' address: Gottwaldovo námestí 2, Bratislava.

SHVARTS, Shtefan [Schwarz, Stefan]

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Semicharacters of the multiplicative semigroup of integers
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Malignant chorioepithelioma of the uterus. Pat. polska 13 no.2:
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(UTERUS NEOPLASMS case reports) (CHORIOCARDINOMA case reports)

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SCHWARZ, Stefan

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13 no.3:372-426 S '63.

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L 32093-66 IJP(c)

ACC NR: AP6020637

SOURCE CODE: CZ/0045/65/000/003/0215/0228

AUTHOR: Schwarz, Stefan--Shvarts, Sh. (Bratislava)

ORG: Department of Mathematics, SAV, Bratislava (Kabinet matematiky, SAV)

TITLE: Powers of non-negative matrices

SOURCE: Matematicko-fyzikalny casopis, no. 3, 1965, 215-228

TOPIC TAGS: mathematic matrix, algebra

ABSTRACT: In the article certain properties of the sequence $A, A^2, A^3, \dots$, are studied, where A is a non-negative reducible matrix. Orig. art. has: 14 formulas. [Orig. art. in Eng.] [JPRS]

SUB CODE: 12 / SUBM DATE: 24Jun64 / ORIG REF: 001 / SOV REF: 001

Card 1/1 BLG

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(HYPERTENSION) (PUERPERIUM)

(HYPERCHOLESTEREMIA)

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4

CZECH

Preparation of 2-deoxy-D-glucose. Jaroslav Stanek and
Vladimír Schwarz (Karlová Univ., Prague). *Chem. Listy*
48, 200-201 (1954). Collection Czechoslov. Chem. Commun.
20, 42-5 (1955) (in German).—Triacetyl-D-glucal (I) added
(BaO_2HAg and $(\text{UO}_2)_2\text{BrAg}$ to give 1-benzoyl-3,4,6-tri-
acetyl-2-deoxy-2-iodo- α -D-glucopyranose (II) and 1-benzoyl-
3,4,5-triacetyl-2-deoxy-2-bromo- α -D-glucopyranose (III), resp.
Both halogen derivs. give 2-deoxy-D-glucose (IV) by reduction.
Adding a C_6H_5 soln. of 10.7 g. iodine into a suspension
of 23.6 g. dry BaO_2HAg in 200 ml. C_6H_6 , treating the mixt.
with a soln. of 20 g. I in 200 ml. C_6H_6 , heating the mixt.
7 hrs. on the steam bath, removing the AgI, evap. the sol-
vent, and crystg. the residue from EtOH gave 20.8 g.
(54.7%) II, m. 128-30°, $[\alpha]_D^{25}$ 21.7°. Analogous procedure
with 13.4 g. BaO_2HAg , 4.8 g. Br, and 3 g. I gave 3.9 g. (33%)
III, m. 130-40°, $[\alpha]_D^{25}$ 53.5°. The same compd. (3 g.), m.
140°, $[\alpha]_D^{25}$ 53.6°, was obtained by adding 3.2 g. Br to a
soln. of 6.44 g. I in 50 ml. CCl_4 , by refluxing the mixt. 3
hrs. with 6 g. BaO_2HAg , filtering off the AgBr, and evap.
the solvent. Reducing 2 g. II or equiv. III in 150 ml. Me-
OH with 60 g. Zn activated by 1 hr. imidation; in a soln. of
80 g. CuSO_4 in 1500 ml. H_2O , removing Zn after 4 hrs.,
evap. the MeOH, and sponng. the residue with NaOH ,
yielded 0.42 g. (20%) IV, m. 145°, $[\alpha]_D^{25}$ 40.1°

M. Hudlický

Jan

Schwarz, V

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Chem

Steroid XXVII. The oxidation of 8-cholesten-3 α -ol with chromium trioxide^{2,7}. Kuter, E. Jir, and V. Schwarz (Chem. listav CSAV, Prague). *Chem. listav* 1958; cf. C.A. 51, 1234f. The conditions for the oxidation of 8-cholesten-3 α -ol (I) to 8-hydroxy-17 α -cholestan-3-one (II) and 8-hydroxy-5-cholestanic acid (III) were studied. I (27.8 g.) in 200 ml. (CH₂Cl)₂ was treated with stirring and ice cooling with 11.4 g. Br in 135 ml. (CH₂Cl)₂, kept overnight, dild. with 200 ml. AcOH, cooled and stirred, while the oxidant (65 g. CrO₃, 83 ml. H₂O, 300 ml. AcOH, and 100 g. concd. H₂SO₄) was gradually added within 1 hr., with the temp. kept at 21°. The soln. stirred 22 hrs., the excess CrO₃ reduced with MeOH, the acid steroids were debrominated with 20 g. Zn in AcOH, the acid sepd. from the neutral products by extr. with 20% NaOH, the neutral fraction was isolated in the form of the acetates, and the acid fraction after deacetylation, in the form of the free acids. In this procedure were varied the temp. (0-20-60°), amts. of CrO₃ (50-100-200%), H₂O (50-100-200%), and H₂SO₄ (50-100-200%), and the solvents CCl₄ or (CH₂Cl)₂. Increasing temp., CrO₃ concn., and especially H₂SO₄ concn., increased, whereas H₂O and CCl₄ decreased the velocity of oxidation. With higher concn. of H₂SO₄ the yield of II increased, and that of III decreased. The reaction products were followed by semiquant. paper chromatography.

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SCHWARZ, Vladimir

CZECHOSLOVAKIA/Organic Chemistry. Naturally Occurring
Substances and Their Synthetic Analogs.

G-3

Abs Jour: Ref Zhur-Khin., No 13, 1958, 43485.

Author : Schwarz Vladimir, Cerny Vaclav, Sorn Eratisek.

Inst :

Title : On Steroids. XXX. Preparation of 3 β -Acetoxy-16 α -Hydroxy-Allo-Ethianic Acid.

Orig Pub: Chem. listy, 1957, No 7, 1362-1366.

Abstract: Description of the synthesis of 3 α -acetoxy-16 α -hydroxy-allo-ethianic acid (I), starting from $\Delta^{5,16}$ -pregnadienol-3 β -one-20, by consecutive epoxydation, reduction, introduction of OH-group in position 21, and oxidation with HIO_4 . By hydrogenation of $\Delta^{5,16}$ -16 α , 17 α -epoxypregnenol-3 β -one-20 in alcohol and dioxane over Pd/CaCO_3 , and

Card : 1/5

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CZECHOSLOVAKIA/Organic Chemistry. Naturally Occurring
Substances and Their Synthetic Analogs.

G-3

Abs Jour: Ref Zhur-Khim., No 13, 1958, 43485.

subsequent acetylation of the crude product by the
action of $(\text{CH}_3\text{CO})_2\text{O}$ in $\text{C}_5\text{H}_5\text{N}$, is obtained the acetate
of 16 α , 17 α -epoxy-allo-pregnanol-3 β -one-
20 (II), yield 96%, MP 185-186° (from CH_3OH). The
latter is stirred for 16 hours with $\text{Cr}(\text{CH}_3\text{COO})_2$ in
aqueous CH_3COOH , in an atmosphere of N_2 , and after
chromatography on Al_2O_3 there is isolated 3-acetate-
of allo-pregnandiol-3 β , 16 α -one-20 (III),
yield 67%, MP 184-185°, $[\alpha]_D^{25} +59.7^\circ$ (c 2; chloro-
form), and the acetate of Δ^16 -pregnenol-3 β -one-
20, yield 16.6%, MP 164-165°. By action of $\text{C}_6\text{H}_5\text{COCl}$
in $\text{C}_5\text{H}_5\text{N}$, at 20°, on III is obtained the benzate of
III, yield 77%, MP 196-197° (from CH_3OH), $[\alpha]_D^{25} +28^\circ$
(c 2.2; chloroform), and by the action of $(\text{CH}_3\text{CO})_2\text{O}$

Card : 2/5

CZECHOSLOVAKIA/Organic Chemistry. Natural Products and Their
Synthetic Analogues.

G-3

Abs Jour: Ref Zhur-Khim., No 24, 1958, 81762.

Author : Schwarz V., Cerny V., Sorm F.

Inst :

Title : Steroids. XXX. The Preparation of 3- β -Acetoxy-16 α -
oxy-Alloethianic Acid.

Orig Pub: Collect. czechosl. chem. commun., 1958, 23, No 5,
940-945.

Abstract: See: R. Zh. Khim., 1958, 43485.

Card : 1/1

SCHWARZ, V.

COUNTRY : Czechoslovakia C-3
 CATEGORY : Organic Chemistry. Natural Compounds
 and their Synthetic Homologues
 ABS. JOUR. : RZKhim., No. 20 1959, No. 71589
 AUTHOR : Schwarz, Vladimir; Cerny, Vaclav; Sorn, Frantisek
 INST. : Not given.
 TITLE : Steroids. XXVII. Preparation of Methyl-3 β ,
 16 α -diacetoxybiscorallocholanate and Its 20-
 Epimer. A New Method for the Synthesis of *
 ORIG. PUB. : Chem. Listy, 1958, 52, #8, 1633-1641.
 ABSTRACT : A new method for the formation of a side
 chain in bisnor steroid acids was described.
 The method consists of a reaction of
 CH₃CHN₂ with a corresponding 17-carbonate
 chloroanhydride with a subsequent regrouping
 of the resulting diazoketone. Upon the re-
 action of Na-3 α -acetoxy- Δ^2 -etionate (I) with
 (COCl)₂ in C₆H₆ in the presence of pyridine
 (2 hours, 20 $^{\circ}$), 1-chloroanhydride was formed
 (99% yield). Its solution in C₆H₆ (no puri-
 fication) was added at -20 $^{\circ}$ into an ether
 solution of CH₃CHN₂. The mixture was left

CARD: 1/8

* Side Chains in Bisnor Steroid Acids

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COUNTRY : Czechoslovakia G-3
 CATEGORY :
 ABS. JOUR. : RZKhim., No. 20 1959, No. 71589
 AUTHOR :
 INST. :
 TITLE :
 ORIG. PUB. :
 ABSTRACT : #4, 11431), a mixture of three substances was obtained. Upon repeated chromatography on Al₂O₃ the mixture yielded 604 mg of methyl 3 β -acetoxy- Δ^5 -bismorcholemate (III), m.p. 136-137°; [α]_D²⁵ - 62 $\pm$ 0.5° (from 1.8). Upon reacting 3 β -acetoxyalloethionic acid (IV) with SOCl₂ (0°, followed by 16 hours at 20°) IV-chloroanhydride, (97% yield) was obtained. The reaction of the latter with CH₃CHN₂ (by the above-described method) yielded 17 β -((4-diazopropionyl)-androstano-17 β -acetate (V), 85% yield, m.p. 141-143 (dec), [α]_D²⁵ - 16.6 $\pm$ 3° (from 1.3).

CARD: 3/8

COUNTRY : Czechoslovakia
CATEGORY :

G-3

ABST. JOUR. : RZhKhim., No. 20 1959, No.

71589

ANN. OR
TITL.
TITLE :

ORIG. PUB. :

ABSTRACT : Using the procedure described for III, from 150 mg of V, 114 mg of methyl-3 β -acetoxybis-norallacholate were obtained, m.p. 128-130°, $[\alpha]_D^{25} = 2 \pm 0.50$ (from 1.9). Oxidation of 3 β -acetoxy-16 α -benzoyloxy-21-oxy-20-ketodalloegregname with HIO₄ in a solution of CH₃OH (16 hours, 200°) led to the formation of 3 β -acetoxy-16 α -benzoyloxyallo-ethionic acid (VI), 60% yield, m.p. 222-223° (from ethylacetate), $[\alpha]_D^{25} = 27.4 \pm 20$ (from 1.6); methyl ester of VI (CH₃CO, 85% yield), m.p. 131-132° (from ac. CH₃OH), $[\alpha]_D^{25} = 19.4 \pm 2$ (from 1.7). Na-VI and (COCl)₂ yielded

TABLE:
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COUNTRY : Czechoslovakia 4-3
 CATEGORY :
 ABS. JOUR. : RZhKhim., No. 20 1959, No. 71539
 AUTHOR :
 TITLE :
 ORIG. PUB. :
 ABSTRACT : a corresponding chloroanhydride (93% yield) by means of the above-described method. The latter, reacted with CH_3CHOH_2 , gave an impure 17 β -diazopropionyl-androstadiol 3 β ,16 α -acetate-benzoate (VII), 91% yield. Rearrangement of VII at the above conditions, followed by saponification, esterification, acetylation and chromatographic separation over Al_2O_3 , led to the formation of methyl 3 β ,16 α -diacetoxymisnorallocholanate (VIII), 12% yield, m.p. 143-144° (from CH_3OH), $[\alpha]_D^{20} = 68 \pm 1.5^\circ$ (from 1.9). After the elimination of VIII from the mother liquor

CARD:

5/8

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COUNTRY : Czechoslovakia
 CATEGORY :
 ABS. JOUR. : RZhKhim., No. 20 1959, No. 71539
 AUTHOR :
 TITLE :
 ORIG. PUB. :
 ABSTRACT : methyl 14, 16 α -diacetoxymisnorallocholanate was isolated, 5% yield, m.p. 166-167° (from CH_3OH), $[\alpha]_D^{20} = 42 \pm 1.5^\circ$ (from 1.5). In order to confirm the structure of C(20), VIII was transformed into methyl-bisnorallocholanate (IX) by means of coester synthesis; that is by the oxidation of methyl-10-oxybisnorallocholanate in CH_3COOH , at 200, in the presence of CrO_3 . In such a manner methyl 3-ketobisnorallocholanate (X) was obtained (81% yield, m.p. 194-195° (from CH_3OH), $[\alpha]_D^{20} = 33 \pm 1^\circ$ (from 1.3). Condensation of X with ethane-

CARD:

6/8

COUNTRY : Czechoslovakia
CATEGORY :

G-3

ABST. JOUR. : RZhkhim., No. 20 1959, No.

71589

AUTHOR :
INVT :
TITLE :

ORIG. PUB. :

ABSTRACT : 2 ml CH_2COOH (16 hours, 20°). The resulting diketone was condensed with ethanedithiol (at the above-described conditions) and after boiling with sponge III and Al_2O_3 chromatography was transformed into 1P mg of IV. All E_{270} were determined in CHCl_3 . Article XXVIII RZhkhim, 1959, #15, 535-7.

-- S. Ananchenko

CARD: S/R

Z/008/60/000/09/002/002
E142/E535

AUTHORS: Heřmánek, Stanislav and Schwarz, Vladimír
TITLE: Hydroboration and its Use for Syntheses in Organic Chemistry
PERIODICAL: Chemické listy, 1960, No.9, pp. 994-1014

TEXT: This review article covers work published on the hydroboration reaction, i.e. the reaction of diboranes with unsaturated organic compounds (olefins, acetylenes) when tri- or dioalkyl boranes are formed, up to January 1, 1960 which were accessible to the authors. This reaction was first described by Hurd (Ref.30) who obtained triethylborane on reacting diborane with ethylene. The mechanism of the reaction is described as well as side reactions which occur when diborane is reacted with alcohol, ethers, amines or carbonyl compounds. Trialkyl b. anes are increasingly used as polymerization catalysts and rock fuels. Dialkyl and tetraalkyl diboranes (Ref.1) can be obtained on distilling trialkyl boranes. Alkyl boranes can further be used for the preparation of cisolefins (Ref.13) and for the preparation of alcohols and ketones. The reaction of

Card 1/2

SCHWARZ, V.; TROJANEK, J.

Steroid derivatives. VIII. Quantitative determination of double
bonding in some steroid compounds. Coll Cz chem 26 no.1:117-125
Ja '61. (EEAI 10:9)

1. Forschungsinstitut für Natur-Arzneimittel, Prag.

(Steroids)

SCHWARZ, V.

Steroid derivatives. Part 10: On obtaining of 5 α -pregnan-3 β , 16 α -diol-20-ON. Coll Cz Chem 26 no.4:1207-1209 Ap '61.

1. Forschungsinstitut für Naturarzneimittel, Prag.

(Steroids)

HERMANEK, S.; SCHWARZ, V.; GEKAN, Z.

Steroid derivatives. XII. Chromatography of neutral steroids on a thin aluminum-oxide layer. Coll Cz chem 26 no.6:1669-1679 Je '61.

1. Forschungsinstitut für natürliche Heilmittel, Prag.

(Steroids) (Chromatography)

SCHWARZ, V.

Steroid derivatives. Part 14: Production of methyl androstenediol derivatives with acidic function in position 7. Coll Cz Chem 26 no.8:1958-1966 '61.

1. Forschungsinstitut für Natur-Arzneimittel, Prag.

HERMANEK, S.; SCHWARZ, V.; CEKAN, Z.

Methods of separation of natural products. Part 3: Measurement
of activity of alumina by means of thin layer chromatography.
Coll Cz Chem 26 no.12:3170-3173 D '61.

1. Research Institute for Natural Drugs, Prague.

SCHWARZ, V

Czechoslovakia

Research Institute for Natural Medical Remedies --
Prague

Prague, Collection of Czechoslovak Chemical Communi-
cations, No 11, 1962, pp 2567-2573

"Steroid-derivate XVIII. Selective Protection of
the Hydroxyl Groups in Steroid Combinations
through Trichloracetoxy Groups."

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SCHWARZ, V; HERMANEK, S.; TROJANEK, J.

CSSR

Research Institute for Natural Medicines, Prague (for Schwarz and Trojanek),
Institute for Atomic Research, Rez near Prague (for Hermanek)

Prague, Collection of Czechoslovak Chemical Communications, No 12, 1962,
pp 2776-2783.

"Steroid-Derivatives XX. Influence of the 17 β -Substitute on the Brom-addition
Velocity in 3 β -Acetoxy- Δ^5 -Androsten-Derivatives"

(3)

SCHWARZ, V.; SYMORA, K.

CSR

Research Institute for Nature Drugs, Prague (for both)

Prague, Collection of Czechoslovak Chemical Communications, No 3, 1963,
pp 637-643.

"Steroid Derivatives XCIII. On the Reaction of Epoxides in Aqueous Halogen
Hydrogen Acids"

(2)